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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/752,130	01/06/2004	Eric Vancoill	70030251-1	3914

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
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EXAMINER

DUPUIS, DEREK L

ART UNIT PAPER NUMBER

2883

DATE MAILED: 11/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/752,130

Applicant(s)

VANCOILL ET AL.

Examiner

Derek L Dupuis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-20 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 72 in figure 10 as referenced in page 11, line 21 of the specification.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “30” has been used to designate both the 90-degree angle (shown in figure 9 and referenced on page 11, line 10 of the specification) and the optical coupling module (shown in figure 9 and referenced on page 11, paragraph 28).
3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled “Replacement Sheet” in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: the word “function” in line 16 of page 15 should apparently be “functions”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1-4 and 15 are rejected under 35 U.S.C. 102(a) as being anticipated by *Ma et al.* (*US 6,542,671 B1*).

7. With regard to claims 1-4, Ma teaches a monolithic optical coupling module (8) as shown in figure 1. The module includes a light beam input portion (12) and a light beam output portion (14 and 16). There is an integrally formed light beam attenuator (10) located within the optical path of the light beam input portion (12) and the light beam output portion (16). The light beam input and light beam output portions both comprise an outlet to couple to at least one optical fiber as is shown in the figure. The attenuator comprises a reflective portion disposed in the optical path so as to reflect some incident light away (light beam “R”).

8. With regard to claim 15, Ma teaches a method for forming a monolithic optical coupling module with a light beam input portion and a light beam output portion shown in figure 1. Ma teaches the integral formation of a light beam attenuator (10) in a light path between the light beam input portion and the light beam output portion.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-4, 12, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Si et al. (US 5,539,577 A)*.

11. With regard to claim 1, Si teaches an optical coupling module (20) as shown in figure 2. Si teaches that the module (20) includes a light beam input portion (12b), a light beam output portion (18a) and an optical attenuator (14b) located in the optical path between the light beam input portion and the light beam output portion. Si does not explicitly teach that the module is monolithic or that the attenuator is integral to the module as a whole. It would have been obvious to one of ordinary skill in the art at the time of invention to make the module monolithic and thereby make the attenuator integral to the module because it has been held that the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

12. With regard to claims 2-4, Si teaches a monolithic optical coupling module as discussed above in reference to claim 1. Si also teaches that the light beam output portion and the light beam input portion both comprise an outlet adapted to couple with an optical fiber (see column 1, lines 43-67). The light beam attenuator comprises a light reflective portion (14b) that is disposed in the optical path to reflect at least some of the incident light away as can be seen in figure 2.

13. With regard to claim 12, Si teaches an optical coupling module (20) as shown in figure 2. Si teaches a first surface portion (14b) and a second surface portion separated from the first surface portion (14b) by an angle (α) thereby defining gap as shown in the figure. The first

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surface portion (14b) acts as a light beam attenuator that attenuates a light beam propagating through the first surface portion so as to provide an attenuated light beam. Si does not explicitly teach that the module is monolithic or that the attenuator is integral to the module as a whole. It would have been obvious to one of ordinary skill in the art at the time of invention to make the module monolithic and thereby make the attenuator integral to the module because it has been held that the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

14. With regard to claim 15, Si teaches a method for forming an optical coupling module with a light beam input portion and a light beam output portion. Si teaches the formation of a light beam attenuator disposed in the light path between the light beam input portion and the light beam output portion. Si does not explicitly teach that the module is monolithic or that the attenuator is integral to the module as a whole. It would have been obvious to one of ordinary skill in the art at the time of invention to make the module monolithic and thereby make the attenuator integral to the module because it has been held that the use of a one piece construction instead of the structure disclosed in the prior art would be merely a matter of obvious engineering choice. In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

15. Claims 5 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Si et al.* (US 5,539,577 A) as applied to claims 1 and 15 above, and further in view of *Leib* (US 6,021,008 A).

16. With regard to claims 5 and 18, Si teaches a monolithic optical coupling module as discussed above in reference to claim 1 and a method for forming a monolithic optical coupling

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module as discussed above in reference to claim 15. Si teaches that the attenuator comprises an anti-reflective coating but does not teach that the attenuator (14b) comprises a laser ablated portion. Leib teaches that a laser ablated surface can result in an incident light beam being attenuated by a desired degree of attenuation (see figure 1b). It would have been obvious to one of ordinary skill in the art to use a laser ablated portion as taught by Leib in place of an anti-reflective coating (14b) taught by Si to scatter an incident light beam and thereby attenuate the light since anti-reflective coatings and laser ablated surfaces are equivalents for their use in the fiber optic art and the selection of any of these known equivalents to attenuate a signal would be within the level of ordinary skill in the art.

17. Claims 6, 8-10, 13, 19, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Si et al. (US 5,539,577 A)* as applied to claims 1, 12, and 15 above, and further in view of *Kawai (US 2002/0118917 A1)*.

18. With regard to claim 6, Si teaches a monolithic optical coupling module as discussed above in reference to claim 1. Si teaches that the attenuator comprises an anti-reflective coating but does not teach that the attenuator (14b) comprises a roughened surface portion that has a predetermined degree of roughness so as to scatter and attenuate the incident light beam. Kawai teaches that a predetermined degree of roughness results in an incident light beam being attenuated by a desired degree of attenuation (see page 2, paragraphs 16-18). It would have been obvious to one of ordinary skill in the art to use a roughened surface as taught by Kawai in place of anti-reflective coating (14b) taught by Si to scatter an incident light beam and thereby attenuate the light beam by a desired degree of attenuation corresponding to the predetermined degree of roughness since anti-reflective coatings and roughened surfaces are equivalents for

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their use in the fiber optic art and the selection of any of these known equivalents to attenuate a signal would be within the level of ordinary skill in the art.

19. With regard to claim 8, Si in view of Kawai teach a monolithic optical coupling module as discussed above in reference to claim 6. Si also teaches another surface portion opposite the roughened surface portion separated by an angle (α) to result in a gap in the module.

20. With regard to claim 9, Si in view of Kawai teach a monolithic optical coupling module as discussed above in reference to claim 6. Kawai teaches that the roughened surface portion comprises a ground surface portion (see page 2, paragraphs 16-18) (see figure 3).

21. With regard to claim 10, Si in view of Kawai teach a monolithic optical coupling module as discussed above in reference to claim 6. Kawai also teaches that the roughened portion comprises light reflective portions resulting in some reflection (see page 2, paragraphs 14-22).

22. With regard to claim 13, Si teaches a monolithic optical coupling module as discussed above in reference to claim 12. Si teaches that the first surface portion (14b) comprises an anti-reflective coating but does not teach that the first (or second) surface portion comprises a roughened surface. Kawai teaches that a predetermined degree of roughness results in an incident light beam being attenuated by a desired degree of attenuation (see page 2, paragraphs 16-18). It would have been obvious to one of ordinary skill in the art to use a roughened surface as taught by Kawai in place of anti-reflective coating (14b) taught by Si to scatter an incident light beam and thereby attenuate the light beam by a desired degree of attenuation corresponding to the predetermined degree of roughness since anti-reflective coatings and roughened surfaces are equivalents for their use in the fiber optic art and the selection of any of these known equivalents to attenuate a signal would be within the level of ordinary skill in the art.

23. With regard to claims 19 and 20, Si teaches a method of forming a monolithic optical coupling module as discussed above in reference to claim 15. Si teaches that the first surface portion (14b) comprises an anti-reflective coating but does not teach that the first (or second) surface portion comprises a roughened surface. Kawai teaches that a predetermined degree of roughness results in an incident light beam being attenuated by a desired degree of attenuation (see page 2, paragraphs 16-18). It would have been obvious to one of ordinary skill in the art to use a roughened surface as taught by Kawai in place of anti-reflective coating (14b) taught by Si to scatter an incident light beam and thereby attenuate the light beam by a desired degree of attenuation corresponding to the predetermined degree of roughness since anti-reflective coatings and roughened surfaces are equivalents for their use in the fiber optic art and the selection of any of these known equivalents to attenuate a signal would be within the level of ordinary skill in the art. Kawai also teaches that the roughened surface can be produced by cutting with a saw that also results in the surface being ground (see page 2, paragraphs 16-22).

24. Claims 7 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Si et al.* (*US 5,539,577 A*) in view of *Kawai (US 2002/0118917 A1)* as applied to claims 6 and 10 above, and further in view of *Jaksic et al. (US 5,748,816)*.

25. With regard to claim 7, Si in view of Kawai teach a monolithic optical coupling module as discussed above in reference to claim 6. Neither Si nor Kawai teach that the roughened surface portions comprise surfaces having molded surface irregularities that result in the partial scattering of incident light. Jaksic teaches an optical coupling module with roughened surface portions comprising surfaces that were manufactured from molding with surface irregularities that result in the scattering of light (see column 1, line 64 to column 2, line 50). It would have

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been obvious to one of ordinary skill in the art at the time of invention to use molded surface irregularities on the roughened surface portions to scatter incident light. Motivation to do this is that a molding production method is advantageous because large quantities of the device can be manufactured at favorable cost (see column 2, lines 45-50 of Jaksic).

26. With regard to claim 11, Si in view of Kawai teach a monolithic optical coupling module as discussed above in reference to claim 10. Neither Si nor Kawai teach that the plurality of light reflective portions are disposed to form a pattern. Jaksic teaches an optical coupling device with a plurality of light reflective portions disposed to form a pattern as shown in figures 9a, 9b, and 9c. It would have been obvious to one of ordinary skill in the art at the time of invention to arrange the reflective portions taught by Si in view of Kawai in a pattern as taught by Jaksic. Motivation to do this would be to result in effective suppression of interfering radiation and to make the device more effective (see column 2, lines 32-44 of Jaksic).

27. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Si et al.* (*US 5,539,577 A*) as applied to claim 15 above, and further in view of *Liwak* (*US 2004/0208538 A1*).

28. With regard to claims 16 and 17, Si teaches a method of forming an optical coupling device as discussed above in reference to claim 15. Si provides an input light beam to the light beam input portion that propagates through the module and exits via the light beam output portion as an output light beam. A light reflective portion is integrally formed to attenuate the input light beam to attain a predetermined attenuation. Si does not teach that the intensity of the input light beam is known or that the intensity of the output light beam is measured to determine the attenuation of the input light beam (without the presence of the light reflective portions). Si

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also does not teach that the predetermined attenuation is relative to the intensity of the input light beam. Si also does not explicitly teach that the monolithic optical coupling module is mounted adjacent to a light source of an optical coupling assembly. Liwak teaches a method of transmitting optical signals where the input signal has a known intensity. Liwak also teaches to measure the intensity of the signal before it is attenuated (by the light reflective portions). Liwak teaches to set an attenuator device (such as light reflective portions) to a predetermined attenuation relative to the intensity of the light beam (see page 3, paragraph 21). Liwak also teaches in figure 7 that a coupling module would be mounted adjacent to a light source (71) (such as a laser) in an optical coupling assembly (see pages 7 and 8, paragraph 45 of Liwak) It would have been obvious to one of ordinary skill in the art at the time of invention to provide an input light beam of known intensity and to measure the intensity of the output light beam to determine an attenuation of the input light beam and to then integrally form a light reflective portion to further attenuate the input light beam to thereby attain a predetermined attenuation relative to the intensity of the input light beam. Motivation to this would be to configure the attenuator to “provide an appropriate level of attenuation to ensure that [a resulting] optical signal has a correct and desired intensity” (see paragraph 45 of Liwak).

Allowable Subject Matter

29. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

30. The following is a statement of reasons for the indication of allowable subject matter:

Claim 14 is allowable over the prior art of record because the latter, either alone or in

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combination, does not disclose nor render obvious a monolithic optical coupling module with a total internal reflection optical turn surface portion, a third surface portion through which the attenuated light beam exits the module, and a fourth surface portion through which the light beam enters the module wherein at least one of the total internal reflection optical turn surface portion, the third surface portion, and the fourth surface portion comprises a second integrally formed light beam attenuator in combination with the rest of the claimed limitations..

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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